

What Is Claimed Is:

1. A sensor for detecting particles in a gas stream, particularly a soot-particle sensor (20) for an exhaust system (16) of an internal combustion engine (10), comprising a first electrode device (24) and a second electrode device (32) which are situated at a distance (D) from one another and are able to be exposed to the gas stream, at least in some areas, wherein the electrode devices (24, 32) are separated from each other by an intermediate layer (36) made of an electrically insulating material, and they have free edges (38, 40) that are set apart from each other by the thickness (D) of the intermediate layer (36) and are able to be exposed to the gas stream.

2. The sensor (20) as recited in Claim 1, wherein the intermediate layer includes a foil (36) or a thick film.

3. The sensor (20) as recited in one of Claims 1 or 2, wherein at least one of the two electrode devices (24) includes a plurality of individual electrodes (34a - 34c).

4. The sensor (20) as recited in one of the preceding claims, wherein free edges (38, 40) of the electrode devices (24, 32) able to be exposed to the gas stream are situated at at least one free outer edge of the sensor (20) and/or at at least one through-hole (68) and/or at least one blind-hole-type opening (72) in the sensor (20).

5. The sensor (20) as recited in one of the preceding claims, wherein each of the electrode devices (24, 32) is imprinted onto a foil (22, 30).

6. The sensor (20) as recited in one of the preceding claims,
wherein it includes a heating device (62).

7. The sensor (20) as recited in Claim 6,
wherein it includes a temperature-sensing device (54).

8. The sensor (20) as recited in one of Claims 6 or 7,
wherein the heating device (62) and/or the temperature-sensing device (54) is/are imprinted onto a foil (52, 60).

9. A method for manufacturing a sensor (20) as recited in one of the preceding claims,
wherein it includes the following steps:

- a) the first electrode device (24) is applied on a first carrier (22);
- b) the second electrode device (32) is applied on a second carrier (30);
- c) an intermediate layer (36) made of an electrically insulating material is applied on the side of the first carrier (22) on which the first electrode device (24) is applied;
- d) the second carrier (30) having the second electrode device (32) is arranged on the intermediate layer (36) made of the electrically insulating material in such a way that the side of the second carrier (30) on which the second electrode device (32) is applied points toward the intermediate layer (36) made of the electrically insulating material;
- e) the carriers (22, 30) and layer (36) placed one upon the other are joined to each other (laminated);
- f) the laminate of the carriers (22, 30) and layer (36) is processed in such a way that it has exposed, adjacent edges (38, 40) of the electrode devices (24, 32), the edges being set apart from each other

only by the thickness of the intermediate layer (36) made of the electrically insulating material.

10. A method for manufacturing a sensor (20) as recited in one of Claims 1 through 8,

wherein it includes the following steps:

- a) the first electrode device (24) is applied on a first carrier (22);
- b) at least one insulating intermediate layer (36a, 36b) is applied on the first electrode device (24);
- c) the second electrode device (32) is applied on the insulating intermediate layer (36a, 36b);
- d) a protective layer (30) is applied on the second electrode device (32);
- e) the carrier (22) and layers (30, 36a, 36b) placed one upon the other are joined to each other (laminated);
- f) the laminate of the carrier (22) and layers (30, 36a, 36b) is processed in such a way that it has exposed, adjacent edges (38, 40) of the electrode devices (24, 32), the edges being set apart from each other only by the thickness of the intermediate layer (36a, 36b) made of the electrically insulating material.

11. The method as recited in one of Claims 9 or 10, wherein in step f, the laminate is cut, punched or bored.

12. The method as recited in one of Claims 9 through 11, wherein prior to placing the carriers (22, 30) one upon the other, an inflammable material is applied at least on the first carrier (22) and on the intermediate layer (36) made of electrically insulating material at at least one location at which the electrode devices (24, 32) are intended to have free edges (38, 40), and the laminate is later heated so that the

inflammable material burns and, at the same time, the area of the carrier (22, 30) and of the intermediate layer (36), respectively, on which it was applied, also burns.